FIRE WEATHER OPERATIONS PLAN

2003

PENDLETON DISTRICT

LOCATION:
The Pendleton Fire Weather Office is located at the National Weather Service Office in Pendleton.
2001 NW 56th Dr. Pendleton, OR 97801.

HOURS:
The Pendleton Fire Weather Program is committed to establishing a program with staffed trained to respond to fire weather needs 24 hours per day. In addition a Fire Weather shift will be scheduled during the following times:

Fire Season	7:00 AM - 4:00 PM	7 days a week Normally mid-June to late-September.
Land Management Season	8:00 AM - 4:00 PM	5 days a week. Normally early April - Mid June and late September - October.

The National Weather Service office in Pendleton is open 24 hours a day , 7 day a week and is fully staffed. If there is a need to support a project, additional forecasters can be made available. However, under the provisions of the National Agencies/NWS Agreement (see appendix A), special services provided by the Pendleton Fire Weather office will be done on a reimbursable basis.

PHONE NUMBERS

Fire Weather Desk	(541) 276-8134
General	(541) 276-4493
Fax	(541) 276-8253

INTERNET ADDRESS and E-MAIL:
http://www.wrh.noaa.gov/pendleton/
mike.vescio@noaa.gov
dennis.hull@noaa.gov
robert.tobin@noaa.gov

STAFF

Name	Position
Mike Vescio	Meteorologist-in-Charge
Dennis Hull	Warning Coordination Meteorologist
Jon Mittelstadt	Science and Operation Officer

All Senior and Journeyman Forecasters will train on the Fire Weather desk. However a core group of forecasters will provide the majority of forecasts. The core group includes:

Name	Position
Bob Tobin	Fire Weather Program Leader / IMET
Joe Solomon	IMET/Senior Forecaster
Mary Smith	Senior Forecaster
Roger Cloutier	Senior Forecaster
Vincent Papol	Senior Forecaster

COMMUNICATIONS

All forecasts including spot forecasts are input into the National Weather Service communication system, WIMS and on Pendleton's Internet home page. Forecasts can also be faxed to customers who do not have access to these systems. Internet address is: **www.wrh.noaa.gov/Pendleton**

WEATHER BRIEFINGS

Internet based weather briefings will begin about the end of May. During Land Management season briefings will be held Monday and Thursday. During peak fire season, normally mid June-September briefings will be daily at 0930 PDT. Phone briefings are available 24 hours per day. **New for 2003 the briefings will include the National Weather Service Office in Portland and Land Management Agencies west of the Cascades.**

AGENCIES SERVED

USFS: United States Forest Service

BLM: Bureau of Land Management

NPS: National Park Service

BIA: Bureau of Indian Affairs

USF&W: United States Fish and Wildlife

ODF: Oregon Department of Forestry

DNR: Southeast Washington Area

County and Local Fire Jurisdictions in southeast Washington and central and northeast Oregon.

FORECAST SERVICES

Pre-suppression and Land Management Forecasts:

Routine land management forecasts are issued seasonally in the early and late part of the burning season. They are available twice a day Monday through Friday at 0900 and 1530 PDT. Specific start and stop dates are coordinated with customer agencies. Routine pre-suppression forecasts are available twice daily during the heart of the fire season, usually from mid June through late-September. They will be issued at 0900 and 1530 PDT. The afternoon forecast will contain numerical NFDRS zone trend data appended at the end.

Spot forecasts/Special request Forecasts:

Spot forecast are available year round for wildfires, prescribed fires, or any other critical land management activities conducted by federal land management agencies. The non-federal non-wildfire criteria no longer exits. We are urging land managers to customize spot forecast requests for the parameters that are needed and provide critical weather thresholds that may adversely impact the burn, such as wind, relative humidity, or burn period. This will allow the forecaster to concentrate on the specific data and timeline needed rather than a host of parameters that maybe of little interest. Spot forecasts take precedence over normal office duties. **New for 2003 the Region 6 National Weather Service offices will: *require at least one observation from the fire site for prescribed spot requests*. In addition valid times for spot forecasts will be 12 hours from issuance.**

Information required by the fire weather forecaster from the requesting agency is found on WS form D-1, items 1-12. A spot forecast

for a planned ignition the next day may allow us to provide you with more lead time before the planned prescribed burn. **Feedback of how well the forecast verified is extremely valuable in order to provide more accurate subsequent forecasts.** As such the forecasters in Pendleton requests all observations taken from the burn site be sent to our office. This may be accomplished through FAX or electronically.

Spot forecasts requests will be accepted either, electronically via our internet web site: **www.wrh.noaa.gov/Pendleton**, or by fax at (541) 276-8253. Phone consultations are available 24 hours a day.

Numerical Probability Forecasts:

An ongoing experimental numerical probability forecast will be issued for Zone 632 and will be appended to the afternoon fire weather forecast. This segment of the afternoon Fire Weather Forecast provides numerical probability trends forecasts for selected parameters over a five day period. The parameters included will be:

* Probability of lightning anywhere in the zone
* Probability of a wetting rain, (.10 inch or more of continuous rainfall) anywhere in the zone
* Probability of average RH values less than 15% in the zone
* Probability of average sustained surface winds 14 mph or greater in the zone

Fire Weather Watches and Red Flag Warnings:

Please refer to the Glossary for the formal definitions of Fire Weather Watches and Red Flag Warning events. Specific Red Flag criteria differ for each situation and district. The following are some criteria which would warrant a Fire Weather Watch/Red Flag Warning in the Pendleton Fire Weather District:

Criteria:

Any or a combination of the following combined with very dry fuels are criteria for the issuance of a Fire Weather Watch or a Red Flag Warning depending on the lead time:

* Dry Lightning - Thunderstorms produce less than .10 of an inch of precipitation.
* Any lightning (wet or dry) - After an extended period of dry.
* Very low humidity, less than or equal to 10% in the afternoon with poor recovery at night...35% or less.
* A combination of low relative humidity , 15% and high Haines Index of 6.
* Strong winds combined with low RH's which meet the criteria which will be determined by the RH/WIND table shown below. 10 minutes average wind exceeding 15 mph and relative humidity < 15% in the Basin zones. 10 minute average wind exceeding 20 mph and relative humidity < 20% for the mountain zones. **Except for the southern portion of zone 630 south of the Maury Mountains.** Criteria will be 10 minute average wind exceeding 20 mph and relative humidity < 10% or 10 minute average wind exceeding 25 mph and relative humidity < 15% This must be verified by 2 RAWS sites for a minimum of 2 hours.

Table A. National Weather Service Pendleton Wind vs RH Red Flag/Fire Weather Watch Criteria Table

Note: This is only one element in determining the necessity for a Red Flag Warning or Fire Weather Watch and shall not be the solitary justification.

Columbia Basin ZONES 631 - 675

SUSTAINED 2O FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)

	5	10	15	20	25	30
30						W
25					W	W
20				W	W	W
15			**W**	W	W	W

10			W	W	W	W

RH(%)
The Central and Northeast Mountains ZONES 630...632-635...638 AND ZONE 681

SUSTAINED 2O FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)

	10	15	20	25	30	35
30						
25					W	W
20			**W**	W	W	W
15			W	W	W	W
10		W	W	W	W	W

RH (%)

A Red Flag Warning or Fire Weather Watch may be issued if the wind and humidity fall within the 'warn' section of the table AND fuels, both live and dead are dry.

1. The forecaster is required to check with fire/land management agencies to ensure that 1 hr and 10 hr fuels are dry enough to support active fire.
2. 1000 Hr fuel moisture less than 12% and 100 Hr fuel moisture less than 10%.

Dissemination:

Red Flag Warnings and Fire Weather Watches shall be issued using the Red Flag Statement (RFW) and will be headlined in the routine Fire Weather Forecast. All Red Flag Warnings and Fire Weather Watches will be cancelled using the Red Flag Warning Statement (RFW) and the Fire Weather Forecast will include a headline stating such.

All Red Flag Warnings will be disseminated utilizing the National Warning System (NAWAS) network

All issuances of Red Flag events will be coordinated beforehand with the agencies included in the watch/warning area and with adjacent fire weather offices if the watch/warning is for a zone on a common district boundary. In order to rapidly disseminate Fire Weather Watches/Red Flag Warnings or other information of rapidly changing or hazardous weather conditions that do not meet Red Flag criteria, but will affect fire control or pose a safety threat a priority calling list has been established. NWFO Pendleton will contact the following dispatch office who will provide the appropriate agency notification. If the primary dispatch office is not available, the backup dispatch office may be requested to conduct the notification.

Primary Phone Number:	541-278-3732	Umatilla Dispatch
First Backup:	541-963-7171	NE Oregon Dispatch
Second Backup:	541-575-1321	Malheur Dispatch
Third Backup:	541-416-6800	Central Oregon Dispatch

NON-FORECAST SERVICES

There are several duties that fall into the non-forecast services, including but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

There is a need for advanced notice for teaching assignments, customer meetings and consultations. The NWS-NWSEO Negotiated Agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become “fixed” without paying overtime.

All requests for teaching assignments, customers meetings and customer consultations will be honored provided the are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. NWS Pendleton will make every effort to fulfill requests for teaching assignments, customer meetings and consultations that are scheduled with less than three weeks lead time, or conflict with other Fire Weather commitments. For training requests, please contact Bob Tobin at NWFO Pendleton (541) 276-5829 or robert.tobin@noaa.gov.

USER AGENCY RESPONSIBILITIES

There are several responsibilities of the user agencies including:

* 1300 PST NFDRS observations.
* Site observations for Spot forecast requests. **A representative observation from the burn site is required for all prescribed fire spot forecast requests.**
* Quality Control of RAWS observations
* Timely maintenance of RAWS sites.

FORECAST VERIFICATION

Routine verification will be made on Red Flag Warnings and Spot Forecast turnaround times. In addition selected NFDRS trend forecasts for temperature, relative humidity, and fuel moisture will be verified. Results of the verification will be published in the Fire Weather Annual Summary. The National Weather Service will work with local fire agencies and the Pacific Northwest Coordination Group to develop a baseline for product verification.

CUSTOMER EVALUATION PROCEDURES

The Pendleton Weather Service is currently developing a process where the customer can evaluate the procedures and products issued. Feedback and comments are very important for the success of the fire weather program. The National Weather Service will work with local fire agencies and the Pacific Northwest Coordination Group to develop a baseline for customer evaluation.

FIRE WEATHER FORECASTER PROFICIENCY AND CURRENCY STANDARDS

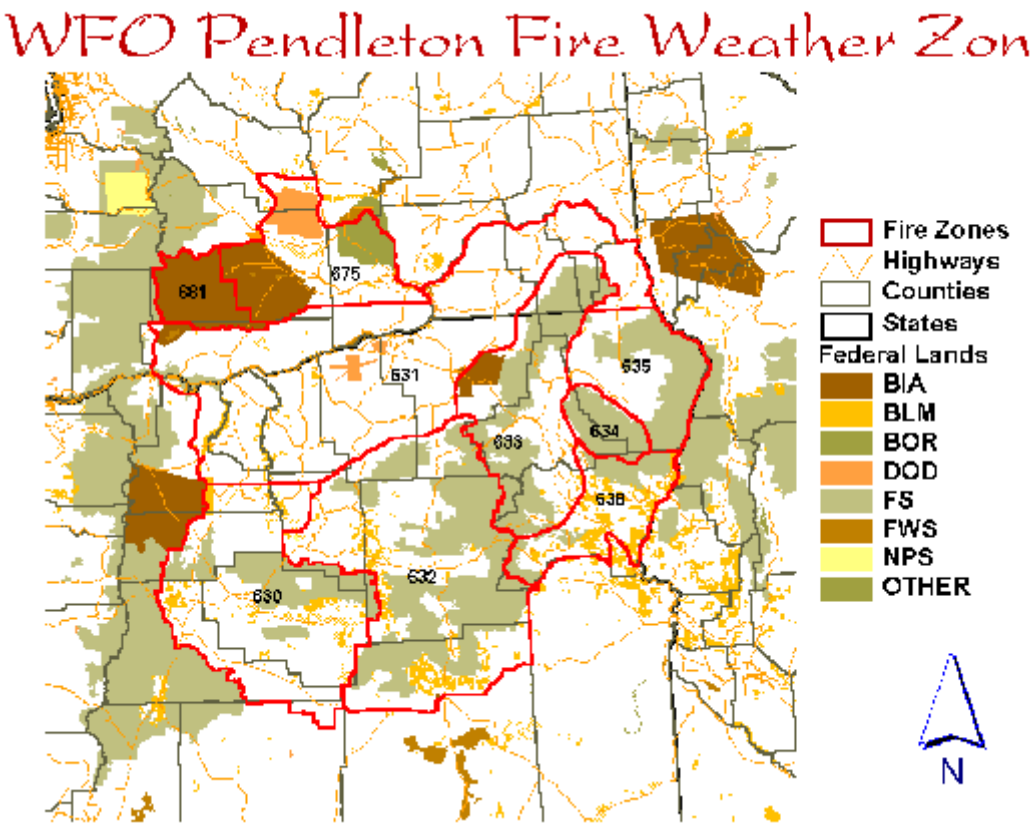
The National Weather Service proficiency standards for service to the fire weather users are shown in Appendix A. The National Weather Service and the Pacific Northwest Coordination Group will review the progress in meeting the standards. Prior to each fire season, the Annual Operating Plan will provide a list of currently qualified forecasters and those expected to be qualified at each weather Forecast office who will be providing fire weather services during the upcoming year.

FORECAST DISTRICT

The Pendleton Fire Weather District currently serves the northeast quadrant of Oregon, much of central Oregon east of the Cascade mountain range (Crook county, the east parts of Jefferson and Deschutes county, Umatilla, Union, Wallowa, and Baker counties), and a large portion of Southeast Washington (Benton, Franklin, Klickitat, Yakima Walla Walla, Columbia, Garfield and Asotin counties). Please see the district map for specific outlines of the Fire Weather Zones.

GEOGRAPHICAL AREA DESCRIPTIONS

The Pendleton Fire Weather forecast will be sectioned by Fire Weather Zone. This will result in 9 separate zone forecasts. These zones are based on terrain, elevation, weather characteristics, and political boundaries. The following are descriptions of each of the three Fire Weather Zones in the Pendleton Fire Weather district.



Central Oregon Mountains - Fire Weather Zone 630

This zone has the largest variability in terrain ranging from mountains with steep slopes, and narrow canyons to high elevation rolling hills, grasslands, meadows, and river valleys. Elevations range from about 3500 ft MSL to over 6000 ft MSL. Weather conditions can vary widely and are influenced by the terrain on a diurnal basis. Annual precipitation amounts range from near 10 inches on the grasslands to near 35 inches in the Ochoco mountains, with the majority of the precipitation occurring during the winter months. Heavy fuel loadings and the availability of ladder fuels in the higher elevations, give this area the potential to develop large, crowning project fires. Winds are generally light to moderate, but late day gusts often exceed 20 mph. July through September average between .50-.75 of precipitation due to scattered thunderstorms. This zone has a relatively low frequency of lightning with 15-20 thunderstorm days per year.

Columbia Basin of Oregon and Southeast Washington - Fire Weather Zone 631

This area is characterized as flat or smooth rolling hills in the Lower Columbia Basin of Northeast Oregon and Southeast Washington. Elevations range from about 200 ft MSL to approximately 3000 ft MSL along the foothills of the Blue Mountains. The weather in this area is characterized as warm to hot and dry during the summer with little precipitation, especially July through September. This is one of the two driest zones in the district. Precipitation averages range from 5-8 inches at the lowest elevations of the basin to near 20 inches along the foothills of the Blue mountains. The Cascade Mountains to the west and the Blue Mountains to the east have a considerable influence on this area. A “rain shadow” is often created from weather systems that

move inland from the Pacific. Down slope foehn type winds are not uncommon during the fire season. The Columbia River Gorge frequently causes strong channeling of westerly winds into the area after a cold front passage, but with little rainfall. Gusts 20-25 mph are common on ridge tops. Occasional summer thunderstorms bring localized heavy rain, however average precipitation July through September is about .50 inches. This zone has a low frequency of lightning with around 5 thunderstorm days west of Arlington and 5-10 thunderstorm days east of Arlington.

Southern Blue and Strawberry Mountains - Fire Weather Zone 632

This zone is composed of varying and complex terrain, ranging from mountains with numerous steep sloped and narrow drainages to flat plateaus, meadows, and river valleys. Elevations range from about 3200 ft MSL in the John day valley to over 8500 ft MSL in the Strawberry mountains. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light to moderate and diurnal, however the higher elevation ridges can often report gusts 20-25 mph. Annual precipitation amounts range from less than 20 inches in some valleys to 50-55 inches in the highest mountains. The majority of the precipitation occurs during the winter snow season. July is the driest month averaging between .50-.70 of an inch. Otherwise June, August, and September average near 1 inch. This zone has a low to moderate frequency of lightning averaging 20-25 thunderstorm days per year.

Northern Blue Mountains - Fire Weather Zone 633

Terrain in this area is highly variable and complex, ranging from mountains with steep slopes and narrow canyons to flat plateaus, meadows, and river valleys. Elevations range from below 2500 ft MSL in the Grande Ronde valley to near 9000 ft MSL in the Elkhorn mountains. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however there are two areas of concern. The north end of the district can be influenced greatly by strong gusty winds moving up the Columbia and Snake rivers and the Grande Ronde valley is heavily influenced by pre-frontal winds out of the southeast. Annual precipitation amounts range from 15-20 inches in some valleys to 40-45 inches in the highest mountains. The majority of the precipitation occurs during the winter months. July is the driest month averaging between .50-.70 of an inch. Otherwise June, August, and September average near 1 inch. This zone has a low frequency of lightning averaging about 20 thunderstorm days per year.

Eagle Cap District - Fire Zone 634

This area is entirely within the Wallowa mountains and the majority of Eagle Cap Wilderness area. Terrain in this area is very complex with high mountains and numerous very steep slopes and narrow drainages. Elevations range from below 3500 ft MSL to near 10,000 ft MSL. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however the ridges can see sustained winds 20-25 mph. This is the wettest zone with annual precipitation amounts ranging from near 40 inches in the Minam and Lostine river canyons to over 80 inches in the highest mountains. The majority of the precipitation occurs during the winter months. This zone has a low to moderate frequency of lightning with around 25-30 thunderstorm days per year.

Wallowa District - Fire Weather Zone 638

This zone contains highly variable terrain as well, ranging from mountains with steep, narrow drainages to the deep canyons of the Snake and Imnaha rivers, to open, flat valleys. Elevations range from near 4000 ft MSL to near 6000 ft MSL. Weather conditions vary widely and are largely influenced by the terrain on a diurnal basis. Winds are generally light and diurnal, however the Snake and Imnaha rivers can have a large influence on the winds due to channeling and venturi effect. Annual precipitation amounts range from 15-20 inches in some valleys to 40-45 inches in the highest mountains. The majority of the precipitation occurs during the winter months. July is the driest month averaging between .50-.70 of an inch. Otherwise August and September average near 1 inch. This zone has a low to moderate frequency of lightning averaging about 25-30 thunderstorm days per year.

Eastern Washington Southern Columbia Basin - Fire Weather Zone 675

This area is characterized as a wide river basin with numerous west to east running ridge lines, and smooth rolling hills in the Lower Columbia Basin of Southeast Washington. Elevations range from about 200 ft MSL to just below 4000 ft MSL along the the Rattlesnake Hills. The weather in this area is characterized as warm to hot and dry during the summer with little precipitation, especially July through September. This is one of the two driest zones in the district with precipitation averages ranging from 5-7 inches near the Columbia river to 12 inches along the Rattlesnake Hills. The Cascade Mountains to the west and the Blue Mountains to the east have a considerable influence on this area. A “rain shadow” is often created from weather systems that move inland from the Pacific. Also, down slope foehn type winds are not uncommon during the fire season. The Columbia River Gorge frequently causes strong channeling of westerly winds into the area after a cold front passage, but with little rainfall. Afternoon gusts 20-25 mph are common on ridge tops. Occasional summer thunderstorms bring localized heavy rain, however average precipitation July through September is about .50 inches. This zone has a low frequency of lightning with around 5 thunderstorm days per year .

Yakama Alpine District - Fire Weather Zone 681

This areas covers the extreme southern Cascades crest down to the southern boundary of the Yakima Indian agency. Elevation ranges from near 1500 ft MSL to 5600 ft MSL. This district has pronounced climate differences, form the marine air influence near the Casacade crest, to the dry, desert climate near the Columbia River. Annual precipitation amounts range from less than 15 inches to over 40 inches. It is relatively windy with a low occurrence of lightning. It averages about 10-15 thunderstorm days per season from June through September.

APPENDIX A

FIRE WEATHER FORECASTER PROFICIENCY AND CURRENCY

A. Proficiency

1. Completion of fire weather forecaster training requirements (defined in ROML W-20-99). In addition, items 7,8 and 9 under the Meteorologist Baseline column in appendix B will be required for this agreement.

2. Work no less than 5 shifts with a qualified fire weather forecaster, handling all duties of that shift including(but no limited to) the preparation and issuance of:
-routine fire weather forecasts (pre-suppression).
-spot forecasts
-briefings
-non-routine forecasts
As many training shifts as possible should be worked during the critical fire weather season

3. WFO Fire Weather Program Leader and appropriate WFO Management concur and sign off on proficiency.

B. Currency

1. Forecaster has prepared and issued 15 fire weather forecasts in past year.

2. Forecaster has prepared and issued 10 percent of office spots or 5 spots in past year or completion of an IMET assignment.

C. Proficiency Renewal

Purpose: To renew fire weather proficiency of a forecaster if they have not met currency standards in element B.

1. Forecaster works no less than 3 shifts with a qualified fire weather forecaster or successfully complete drill(s) which includes key aspects of local fire weather program.

2. WFO Fire Weather Program Leader and WFO Management concur and sign off on proficiency.